

*REMARKS**Discussion of Claim Amendments*

Claim 1 has been amended to focus on compounds wherein X is sulfur. In addition, in claim 1, the term “thio” has been replaced with --mercapto--, as would be clear to those skilled in the art that the intended term is mercapto. The term “isomer” has been defined in claims 1, 4, 6, and 8 as an optical or stereoisomer, as disclosed in the specification, e.g., at paragraph 0045, pages 20-21. Claims 3 has been amended that R₃ and R₃' are different “from each other”, as would be clear to those skilled in the art. Claim 7, which ultimately depends upon claim 1, has been amended to remove subject matter not falling within the scope of amended claim 1. Claims 26-31 have been amended to recite a method of treating breast cancer. New claims 43-51 have been added and are directed to embodiments of the invention. The amended and new claims are supported by the original claims and the specification. No new matter has been added.

The Office Action

The Office Action sets forth the following ground for rejection:

1. Claims 1, 3, and 17 are rejected under 35 USC § 102(b), as allegedly anticipated by Boullais (Tetrahedron. 1983, Vol. 39, No. 5, pages 759-765);
2. Claims 1, 2, 4, 6 and 8 are rejected under 35 USC §102(b), as allegedly anticipated by McCormick 1983 (Proceedings of the Royal Academy of Sciences. 1983, Vol. 83B, pages 125-138);
3. Claims 1-4, 6, 8, and 17 are rejected under 35 USC § 102(b), as allegedly anticipated by Bloch (J. Med. Chem.; 1967; 10(5) pp 908-912);
4. Claims 1, 2, 4, 6, and 8 are rejected under 35 USC § 102(b), as allegedly anticipated by McCormick 1978 (J.C.S. Perkins I. 1978, Vol. 5, pages 500-505);
5. Claims 1, 3, 10, 12-15, 17, 19, and 27 are rejected under 35 USC § 102(b), as allegedly anticipated by Jacobson 1995 (J. Med. Chem. 1995, Vol. 38, pages 1720-1735);
6. Claims 1, 3, 10, 12-15, 17, 19, and 27 are rejected under 35 USC § 102(b), as allegedly anticipated by Jacobson 1997 (USP 5,688,774);

7. Claims 1-4, 6, 8, 10, 12-15, and 17-42 are rejected under 35 USC § 112, second paragraph, for an alleged indefiniteness; and

8. Claims 12-15 and 26-42 are rejected under 35 USC § 112, first paragraph, for an alleged non-enablement.

Claims 5, 7, and 9 are objected to as being dependent upon a rejected base claim, but are indicated allowable if re-written in independent form including all of the limitations of the base claim and any intervening claims.

Examiner Interview

Applicants wish to thank Examiner Dr. Mark L. Berch for the courtesies extended to Xavier Pillai, one of applicants' attorneys, during the telephone interview held on May 5, 2006 to discuss the Office Action. Applicants pointed out that a certified copy of the priority application KR 2002-0065441 was forwarded to the USPTO on January 14, 2004, during the International Phase of the patent application. The Examiner indicated he will check the records and asked applicants to check back in two weeks. During the interview, a claim amendment using a "proviso" language was discussed. No agreement was reached.

Discussion of Anticipation Rejections

Applicant has amended claim 1. This should remove the anticipation rejection over Boullais. The rejection of claim 17 over Boullais is erroneous. Species 15 disclosed by Boullais contains $X = O$. Claim 17 is dependent upon claim 1 which recites $X = S$. The amendments to the claims also overcome the anticipation rejections over McCormick 1983, Bloch, McCormick 1978, Jacobson 1995, and Jacobson 1997. In view of the foregoing, the anticipation rejections should be removed. Claims 43-51 also should not be rejected on this basis.

Discussion of Indefiniteness Rejection

1. Applicants have replaced the term "thio" with mercapto. It is clear to those of ordinary skill in the art that a mercapto group was intended.

2. "Isomer" has been defined as optical or stereoisomer, to further sharpen the claim language.

3. Claim 3 has been amended to recite that R_3 and R_3' are different from each other. Claim 17 has been canceled.

4. Claim 8 is not identical to claim 6. Claim 8 refers to the alpha-anomer at the C1' position of the sugar ring and claim 6 refers to the beta-anomer. Anomer is a special kind of diastereoisomer (or epimer) occurring in some sugars and other substances having asymmetric carbon atom. Those of ordinary skill in the art, i.e., nucleotide chemists, would readily understand the convention employed in the application; there would be no need to show wedge bonds. The alpha-form has the OH group of the sugar unit on the opposite side of the CH_2OH group, whereas the beta-form has the OH on the same side as the CH_2OH group.

5. Claim 12 has been canceled.

In view of the foregoing, the indefiniteness rejection should be withdrawn. Claims 43-51 also should not be rejected on this basis.

Discussion of Rejection under 35 USC 112, First Paragraph

Claims 12-15 and 26-42 are rejected for an alleged non-enablement. Claims 12-15 and 32-42 have been canceled to expedite the prosecution of this application. Claims 26-31 are pending and applicants respectfully submit that these claims are fully enabled, as set forth in the accompanying Declaration. Applicants have shown that one of the compounds of the presently claimed invention, (2S,3S,4R,5R)-5-[2-chloro-6-(3-iodobenzylamino)purin-9-yl]-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide, identified as LJ-529 in the Declaration, has anti-tumor properties in the xenograft mouse model. In view of the foregoing, the non-enablement rejections should be withdrawn. Claims 43-48 also should not be rejected on this basis.

Foreign Priority

The Office indicates that a copy of the priority document KR 2002/0065441, dated October 25, 2002, has not been received and it does not appear on the oath. The Office requires clarification. Applicants respectfully submit that a certified copy of the priority application was submitted during the international phase. See attached copy of "Submission of Priority Document (PCT Rule 17)" along with a copy of the Certificate of Express Mailing, copy of the postcard, and Express Mail receipt from the USPS. In view of the foregoing, Applicants respectfully submit that the requirement for furnishing a copy of the

foreign priority document has been fulfilled. Applicants respectfully request that the Office acknowledge the receipt of the priority document in the next Office Action or Notice of Allowance.

Conclusion

Applicants respectfully submit that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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